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Question Paper Code : 57276

B.E./B.Tech. DEGREE EXAMINATION, MAY/JUNE 2016

Second Semester

Electronics and Communication Engineering

EC 6201 – ELECTRONIC DEVICES

(Regulations 2013)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions.

PART – A (10 × 2 = 20 Marks)

1. What is meant by diffusion current ?
2. Define storage time.
3. A transistor has $\beta = 150$, find the collector and base current, if $I_E = 10$ mA.
4. What is meant by base width modulation ?
5. Compare MOSFET & FET.
6. Give some applications of JFET.
7. Mention some advantages and disadvantages of Tunnel Diode.
8. Draw the energy band diagram of Metal Semi conductor junction after contact is made.
9. What is meant by regenerative action of SCR ?
10. Mention some advantages and disadvantages of LCD.

PART – B (5 × 16 = 80 Marks)

11. (a) The diode current is 0.6 mA when the applied voltage is 400 mV and 20 mA when the applied voltage is 500 mV. Determine η . Assume $\frac{kT}{q} = 25$ mV. (16)

OR

- (b) (i) Describe the action of PN junction diode under forward bias and reverse bias condition. (10)
(ii) The reverse saturation of a silicon PN junction diode is 10 μ A. Calculate the diode current for the forward bias voltage of 0.6 V at 25 °C. (6)
12. (a) Draw the CE configuration of NPN transistor, and explain its input output characteristics with suitable diagrams. (16)

OR

- (b) (i) The reverse leakage current of the transistor when connected in CB configuration is 0.2 mA and it is 18 μ A when same transistor is connected in CE configuration. Calculate α_{dc} & β_{dc} of the transistor. (Assume $I_B = 30$ mA) (12)
(ii) Distinguish between h-parameter and hybrid π model. (4)
13. (a) Derive an expression for drain current of FET in Pinch off region with necessary diagram. (16)

OR

- (b) (i) Explain the construction and principle of operation of depletion MOSFET with suitable diagram. (10)
(ii) Write short notes on Dual gate MOSFET. (6)
14. (a) What is meant by tunnelling ? Explain the V-I characteristics of a tunnel diode using energy band diagram. (16)

OR

- (b) Briefly describe about the operation of
(i) Varactor Diode (8)
(ii) Laser Diode (8)

15. (a) Draw the basic structure of UJT and explain V-I characteristics of UJT using equivalent circuit. (16)

OR

- (b) Draw the V-I characteristics of
(i) DIAC (8)
(ii) TRIAC (8)
and explain its operation.